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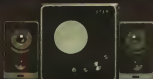


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Every year, in keeping with tradition, we decide to start the New Year off right, the great if with the highest of hopes and with the cloud police of resolutions. "This year will be different," we think, "I will follow through on my resolutions." We say. Whether you resolve to drop a few holiday pounds, quit smoking, make more time for family and friends, organize your business receipts, digital or analogue photo collection, your digital audio or video library or whatever, resolutions for at least my resolutions invariably seem to fall by the wayside. They are forgotten in the first few weeks of the New Year, never to be considered again, save perhaps in the countdown to the end New Year. This year will be different. No, seriously.

I'm going to succeed by making resolutions I know I can stick with.

Resolution One: I won't email anybody anything in a file format they don't recognize or that they have to search around for software in order to open. Of course, that means I won't use the obscure file format in the latest Microsoft Word. However, also means I won't be sending the .vml default document file name as the open source .dtdWord, nor will I send .odt files. No one wants to hear open source evangelism when they're trying to figure out why an attachment won't open. Instead, I'll just send .pdf (rich text format) files and let the rest sort itself out. People can go without fiddling around with obscure file formats and company logos that have never been optimized for use in digital file-based and so, push the file size of a corporate document past 1MB. They don't need to see "Word Art" or any of the other embellishments that make documents look more like a rejected CompuServe home page at the beginning of the dot-com days.

Resolution Two: I will set daily virus, spyware, adware and scans to run concurrently over my lunch hour. This will have the added benefit of forcing me to take a lunch hour as my office PC will be essentially unusable while the scans are running. Cancelling out scans is not wise but working with a computer while it's running a virus scan is out of the question.

Resolution Three: I will stop using the star function of Gmail just so I can feel like I've taken the appropriate steps with an email message. While I'm at it, I may for may not, this isn't a resolution as much as it is a vague hope I start clearing out and dealing with the piles of old and in many cases unread email messages in my inbox. 5,177 checked at the time of writing. This unwieldy inbox is the result of years worth of emails whose subject lines alone let me know I don't need to read further along with a daily email overload, sometimes as many as 250 messages in a day. Fortunately, Gmail has been steadily ramping up the amount of storage accorded to each person. My current inbox size of 171.7MB would have been around 90 per cent capacity six months ago. Now it's a mere 30. Still, it really needs a purge.

Resolution Four: I will finally get a wide screen monitor for my main home computer. The productivity boost I've noticed using a wide screen in the office deserves to be applied to home life as well. If nothing else, it can watch movies and play games in wide screen. That's gotta be worth something.

Resolution Five: I will bite the bullet and pony up for a proper data plan. Cell phone plans are pretty reasonably priced in marketing brochures. The truth is however, unless you can justify in the region of \$100 per month for a usable data plan with a decent amount of talk time as a business expense, they're just too expensive. If the iPhone ever does actually (difficult) make it to Canada (at the time of writing, the latest rumored date of December 4 has come and gone), I'll wait, etc. as much or more than then next person. But getting a usable data plan to take advantage of all that Apple goodness puts the total cost of ownership at over a grand a year. No go!

Resolution Six: I will stop looking on to tech junk just because it had a value at one point in time. More to the point perhaps, I'll stop paying tech junk just because it's got a price tag of \$20 when 20 years ago it would have cost several thousand. Stuff like aluminum atomic cases holding a 1600mm video tape recorder (with cathode ray tube monitor) and an inexplicably night vision "portable" video camera that attaches (to what? I'm a pack rat as some say). I'm not yet to the point that my apartment is crisscrossed to the ceiling with tech gear machines and newspapers to the point that you can't even walk. Still, it's a slippery slope.

Resolution Seven: I will uninstall the Starline Upon toolbar from every PC I use. While it's given me untold leads and potential story ideas, it's a productivity robber. Not to mention a sleep stealer. For every interesting article that pops up, deleting one man's theory that, by the year 2050 in New Orleans, people will be used in unholy matrimony with robots and that robot to non-robot sex will come in to play well before that time (www.livescience.com/technology/071012robotmarriage.html), there's three times sucking Flash games. For every interesting how-to article, a dozen shared old pictures. For every latest and greatest gadget that there are 10 Gilbert, Calvin & Hobbes, Quixote and Huckleberry etc. drinks of varying blarney. Who am I kidding, you can't uninstall Starline Upon.

Happy New Year!

Enjoy the issue,
Andrew Moore-Cropan
Editor

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Building the beast

The CPU: Recording "analog" audio such as a guitar or piano in a multitrack environment is extremely hard on a processor. Therefore, particularly if you intend to go several tracks deep with your songs and often virtual instruments (software emulations of real

instruments such as saxophone, keyboard) and other devices like MIDI keyboards and loops built, preferentially produced musical snippets—usually drums, percussion or beat-heavy synths—that are inserted into a song and repeated, you'd best buy the most powerful CPU you can afford. A midlevel Intel Core 2 Duo CPU such as the 2.0GHz, 667MHz FSB T7200 or equivalent should be considered the minimum. Though hardcore users won't be converting overtly by moving up to an Intel Core 2 Duo Quad or equivalent.

That said, if you all want to do as record your own voice and one or two

backing tracks, or if you're into electronic and dance beats without recording your own voice in almost unnecessary, you should be able to get by with an entry-level Core 2 Duo. Don't even bother with Intel's Celeron—budget CPUs just won't do the job.

Memory: 1GB of 4300MHz RAM should be enough for most home studio hobbyists; 2GB is better, especially if you intend to use a lot of post-recording effects, virtual instruments and the like.

Storage: This is one area where PC-based systems annihilate standalone DAWs. Whereas even the pricier studiobox makes do with merely sub-80GB hard drives, the storage capacity of your PC is virtually limitless. What's more, hard drives are ridiculously cheap. We recommend not one but two drives—the best for your operating system and applications, and the second for your valuable tunes. This makes life easier for your PC and gives you optional backup capabilities. These days, dual 250GB drives won't cost much more than \$150.

The Sound Card: Look for a model that supports a 24-bit data width and 96kHz sampling rate. It should also have 1/4-inch inputs and a "breakout box" to

route the cables from the electronics and provide extra connections and mixer controls. Two tried-and-true consumer examples that won't totally break the bank—both are available for less than \$200—are the M-Audio Delta 44 and the Creative 1282M. Remember, high-end consumer cards such as those from Creative Labs can do the job, but many users report driver, latency and noise-floor issues.

The Video Card: Audio software is generally not presented in 3D, so you don't need to drop big coin on a 3D accelerator card. You may, however, want to spend those dollars—up to \$200 of them—on a good dual-monitor 2D card such as something from the Matrox Millennium or ATI Fire series. Why? Because a two-monitor setup allows you to spread your software interface across a much larger area—a very desirable trait for those who want to get a better look at the many windows. But most of us peepers will be quite happy with a single monitor. And those who are not also be quite happy with a basic, sub-\$100 3D or 2D card.

By Gord Gore



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The making of: Hobbyist home studio

Part 1: Committing ideas to analogue and digital

Boss DR600



So you have this melody in your head. It's going around and around, and you know the music-buying public (or maybe just your local friends) will eat it up. You grab your guitar or run to your keyboard or warm up your voice and you flesh that baby out. But then what? What are you going to do to ensure you don't forget the melody that right now exists only in your mind?

You record it, naturally. But how? In this two-part guide, spread over this and the next issue, we'll look at the many options available to the home studio hobbyist. This month we'll check out the entry-level options, the not-so-entry-level alternatives, and the central components of a PC-based rig. So if you're ready, let's rock.

Starting musician method

If you're an absolute beginner, you could go the rock-before-rose and pick up a simple cassette recorder such as the Sony TCR655 (\$425). You'll get your ideas on tape with a minimum of fuss, but the result will be so fidelity that you may never want to listen to it. A far better idea for the budget composer would be entry-level (sub-\$400) portable multitrack recorders such as the BOSS DR600, the ZOOM H4 Handy Recorder, the TRASCAM DR-01 8-track Digital Portastudio, or the Proton X-12 Xinging Multitracker. The recording medium offers front end to use cassette, memory card and hard drive, respectively, but they all offer fidelity sound that's leagues ahead of a cheap tape cassette deck.

Moreover, each supports "multitracking." Multitracking allows you to record and layer several different instrumental or vocal tracks on top of each other. You can, for example, record a guitar part, and then record a piano and/or vocal part while you're listening to that first guitar part. This is a critical feature for anyone who plays multiple instruments or wants to create a full song. The better models also allow you to create a full edit and replace mistakes and add studio-style effects such as reverb or compression.

But budget-level portastudios simply won't do the trick for those whose aspirations go beyond the basics. They severely limit the number of simultaneous tracks you can record, the number of tracks you can store, the effects you can use, the editing precision and future expandability and upgradability. What's more, anyone who wants to work with loops (see "I do...do...do...do" in a

Recording lingo

Take notes: For our purposes, the resolution of recorded music. The better the data width, the finer and more accurate the results.

DAW: Digital Audio Workstation, a PC-based or standalone device geared for mixing and recording high-quality audio.

MIDI: Musical instrument digital interface, a means of interfacing instruments digitally with your PC or other computer hardware.

Loop: An audio file (often drums and percussion) of extremely short duration that, when repeated, sounds like a continuous piece of music.

Noise floor: The level of constant residual noise in a system.

Track: One element of a musical composition, e.g. drum track, vocal track, bass track etc.

minute, though it can safely be said they play a big role in rock and roll dramas and electronic music) can usually not do so fast. Sooner or later, most musicians who begin with a portastudio move on to the money ladder to something else.

The ups and downs of standalone DAWs

That something else is often a full-blown, standalone digital audio workstation (DAW). Really just broke-out, streamlined versions of the portastudios above, standalone DAWs such as the Yamaha AWE400, the BOSS DR-160000 and the ZOOM M501/60000 deliver studio-grade 24-bit digital recording, hard drive storage, a ton of effects (often including exotic stuff such as pitch correction and guitar amp emulations), enough inputs to record an entire band in one take, enough tracks to add any additional instrumentation or sounds your heart desires and more knobs and sliders and controls than even a professional audio engineer would likely need. Some include onboard CD burning and a roster of loops and drumbeats.

But audio workstations such as these do have drawbacks, particularly to those of us familiar with the versatility and charmlike attributes of a PC. If, for instance, you want to upgrade the processor or the hard drive, you're out of luck. If you'd prefer a full-color 20-inch display rather than the comparatively tiny monochrome screen you'll find in most workstations, you may be able to connect one—or you may not. And if you want to use third-party effects or software, you're going to have a hard time doing so. Essentially, the audio workstation you buy today will be pretty much the same five years from now. A PC, on the other hand, is fully upgradable and expandable. It isn't proprietary, so it's not just about



Boss DR16000

of heat pipes and fans also affects a heat sink's efficiency. Copper is a better heat sink material than aluminum and the addition of heat pipes also adds to efficiency. A heat pipe is a pipe with a bit of fluid in it. As the liquid gets heated, it evaporates moving to the cool end of the pipe where it condenses again. It is a more efficient way of conducting heat than using a solid material and can remove heat around better and for longer distances. While it is still possible to cool the motherboard chip using a heat sink alone, the days of cooling a CPU or mid-range graphic card without active cooling seem to be long gone. Even expensive liquid cooling solutions still use a fan. However, there is one fanless solution I've found called the Resonator 2 from Zalman which is a huge radiator that cools everything except the power supply. At around \$350 silence is golden but you can heat your house in a pinch. For totally silent cooling, Therm-a-Tek's Quiet PC in which all components are submerged into a case filled with cooking oil. Very "food" and makes for a great calamari too. Mineral oil solutions are more stable, as vegetable oil can go rancid. Even still, this is perhaps best not tried out at home.

Welding Power with a Soft Touch
Power supplies have always had fans in them, even at the time when you could touch a working CPU with your bare hands. Back then, they didn't need two or four of them though. When looking for a quiet power supply, check for one big fan over two small ones. Another factor that comes into play is the efficiency of the power supply itself. The less efficient it is, the more electricity it wastes as heat and the faster the fan has to spin to cool it. When shopping for one, look for high efficiency ratings and a single large fan, if any. There are a few totally silent power supplies out there, although usually on the low end of capacity such as the TSP Fortron Zen PS300-600W, which is 300W and goes for around \$85.

A Case of Rattle and Hum
Cases are another source of noise as they can amplify the vibrations of drives and fans into sound. Generally the things to look for are airtight airflow, some weight, rubber feet and a tight fit and finish throughout. Getting an anti-vibration mounting kit can help with isolating

drives and fans from the case as well. Antec Sonata cases are quiet with good airflow, silicone grommets for isolating hard drive vibration and sound deadening side panels. They start at around \$129. As for disk drives, most modern drives are rated close to 3000 which is a good benchmark for how loud quiet is. In the case of drives, isolating vibration is most important, but if drive noise is still bothersome, Seagate makes quiet drive enclosures for around \$40.

If you notice we're talking about power and heat a lot, you're right. The same issues for an overclocker trying to get every ounce of speed out of a computer applies to the muffler, who just wants peace, quiet and no less. Where one wants to move

as much heat as possible, the other wants it done quietly. There are a lot of products out there catering to the muffler and it just takes a look around on the net to find them or, even better, check them out at your local computer store.

By Andrew Carnahan



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AMD Spider platform includes quad-core processor

AMC (www.amc.com) has taken the wraps off its long anticipated

"Speed" PC computing platform, which offers an all-in-one solution for the major subsystems—processor, product and channel.

Spicer uses AMD's new Phenom quad-core processors, available in 2.20GHz and 2.30GHz versions. The heart of the graphics subsystem is the 55 nanometer ATI Radeon 3800 graphics processor family, while the AMD 7 Series chipset includes CrossFireX multiple graphics processor architecture with support for PCI Express 2.0. AMD says the

platform can be scaled to include three or four graphics processors. Also included is an AMD-developed HyperTransport 3.0. The company says that this high-bandwidth architecture will support up to 14.4 GB/sec I/O, which means smooth performance for gaming or high-definition 1080p video.

Spider incorporates the Unified Video Decoder (UVD), which promises decoding of HD-DVD and Blu-ray signals. Integrated HDCP and audio for HDMI video is also part of the Spider platform. The new AMD platform is also energy efficient. AMD says the benefits of the 65nm die for the AMD-7 chipset and 55 nm die on the Radeon 3800, along with the company's AMD CoolCore technology are higher levels of energy efficiency and cooler operation. The Spider platform is now available for download.

Wavelength (nm) length class

Homes already wired with Category 5 or Category 6 Ethernet cabling can use the network for home theater applications, thanks to a new HDMI to CoS/CoS converter system from Moenwell.

According to the company, a 1580p signal can be transmitted up to 40 meters (132 feet) using a pair of Cat5 or 60 meters (200 feet) with a pair of Cat6 cables. The converter consists of an encoder/transmitter unit at one end and a decoder/receiver unit at the other. Honeywell says the system will support HDMI, DVI, 4Kp, 4Kp, 720p, 1080i and 1080p video. It is also compatible with DVI, and supports VGA through VGA computer monitor resolutions. Among the

signals the system will handle include cable TV, satellite receiver, HD TiVo, game systems, Apple TV, HD-DVD, Blu-ray and more. www.homenetworkable.com for info.

Allegory uses the words

Mem-based Alchemy has given us a new reason to lust after its wares. The company's Awe-S1 ALX desktop uses Intel's Core 2 Extreme Q9650 "Penryn," the chipmaker's 594-45 nanometer desktop processor. The Q9650 has a rated clock speed of 3.0GHz, but why stop there? Alchemy has overclocked it 23 per cent up to a 4.0GHz.

new processor is a polygon crunching graphics subsystem, the ATI Radeon HD 3870 in ATi's dual GPU CrossFire configuration. The card is the same ATi box given to six dual graphics card architecture, a competitor to Nvidia's SLI dual card setup in the world of high-end 3D gaming.

Other components to make Area51 ALX take orbit are DDR3 memory and the option of multiple hard drives and the latest in writable optical, a Blu-ray burner. Price? Mid \$6K and up. Alternative products and online store are www.lineware.com.

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A pair of Elements

A test drive with Adobe's imaging duo

Adobe's Elements concept creates consumer versions of its powerful professional-level photo and video editing software suites. These more cost-friendly packages sit on the powerful foundation of the pro-level software. They remove the (prospective) user's make-the-most-of-used editing functions away and create intuitive and generally easier for a more accessible and friendly way to interact with your digital photos and videos. Consider them the middle ground between the (likely) rudimentary software that came bundled with your digital or video camera and the overkill (for amateurs)

in both price and power of the full-on professional options.

You can buy Photoshop Elements 6 for photo editing and Premiere Elements 4 for video editing separately or landed into a single package. If you work with both digital photos and digital video, the bundle makes good sense, and you'll save a few dollars too. Photoshop Elements 6 alone is around \$85 while I've seen the bundle for as little as \$150.

Adobe has made some initial moves of creating an elementary digital asset management system encompassing the two applications. If you look at the

professional Adobe Creative Suite 3 packages you'll find Bridge, which is a visual file browser that works across all the individual applications in CS3 and version 4, which locks files within a workspace environment. Asset management between the two Elements isn't nearly so grandiose, nevertheless, there is enough there to be of some use. For example, you have ready access to your still images from within the Photoshop Elements workspace, so you can push files to incorporate into your video production.

The two Elements have undergone a facelift. In both, the workspaces are primarily neutral gray, which looks pretty cool and also has the practical benefit of providing a neutral frame around your video or still images.

Nevertheless, despite the asset bridging and similar workspace design elements, these are still two separate applications that happen to be sold in a single package. You get two DVDs, you install the applications separately, each has its own 24-digit serial number and registration screen.

I tested the software on an older (timed with single-core 1.7GHz) Core2 processor and 1GB of memory with Windows XP Pro. This is enough power to run either Photoshop Elements or Premiere Elements if you're not too impatient—but of course with all things related to modern computing, more power and multi-core processors mean faster performance.

Photoshop Elements 6.0

At 1.4 GB, the Photoshop Elements 6.0

CD-ROM is fairly large. You may crave Photoshop CS3, but Elements 6.0 is likely if you really need. Okay, if you work in a print production environment where you have

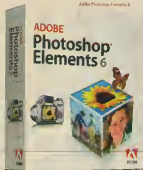
to supply CMYK artwork or if you are trying to become a layer mask guru or if you work extensively with RAW format 36-MB image files, CS3 is the in-house down choice. Otherwise, PLE 6 is worth a close look.

Aftering digital photographs a somewhat standardized workflow has emerged. This is a series of steps or subtasks that include:

- moving the digital images from your camera or memory card to the computer;
- finding and organizing the collection;
- selecting and correcting images; and
- sending them somewhere (email, a web publishing site or your image print) for others to enjoy.

Adobe has been refining this model with each new version of Photoshop Elements, and in version 6.0 you'll find a further evolution of this workflow. In PLE's parlance, the workflow steps are Organize, Edit, Create and Share, and when you launch the application for the first time, the welcome screen shows these four options. As before, you can select whether you always want to start in the welcome screen, or in the organizer module or the editor module. These two main modules started as two separate applications, and they still behave as two distinct parcels of software with overlapping functionality. For example, in the Organizer module you have access to a "Find" panel, which gives you access to a number of one-button correction actions, such as auto levels, auto color and auto red-eye removal. Similarly, in the Editor module, which launches the editor module and loads the image is question into this workspace.

Within the Editor workspace, you have



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ADOBE Premiere Elements 4



have a Quick Edit panel, which is a slide-based control panel to adjust most of the common photographic variables—lighting, brightness and contrast, colour saturation and balance and sharpening. With the Organizer's adroitized Fit panel and the Editor's full and Quick Edit panels, you have a graduated toolset that takes you from no-fringe simple through to complex levels of manipulation of an image. This makes the package great for both casual and serious image making.

If you used version 3, you'll notice that collections are now called albums. Overlay, the Organizer module has been tweaked up and the grey interface makes your images pop. One interesting new feature in the Color palette is a group shot creator.

Suppose you take two or three shots of a group of people but none of them is "perfect"—someone has their eyes closed in one, is another someone is looking off camera, etc. The best shot creator lets you merge the best elements of the photos into one where everyone looks right.

Overall, the changes in Photoshop Elements 4 vs. Elements 3 are evolutionary, rather than earth-shaking a solid and friendly package that's become a lot better.



other segment into two clips at the appropriate spot.

The workspace has three main tabs for Edit, Create Menus and Share. The edit tab gives you access to media (such as still images you might want to use, music clips for sound tracks, etc.), themes which are templates to give your production a unified appearance, effects, transitions and titles. The effects panel gives you access to an extensive tool kit for adjusting basic parameters like colour balance, brightness and contrast, but also some interesting special effects that range from image distortion to chroma key effects.

More than, it was on to the transitions panel to add a simple page turning effect between the segments. The final step was to create a DVD menu, which was easy using one of the included templates. If you haven't put in scene markers, the program will offer to add them for you. This was a relatively simple project, so I let Premiere add them.

Since my notebook does not have an onboard DVD burner I chose to write to the hard drive. During the featured 20-minute movie to MPEG-2 DVD format took just over 30 minutes even though Premiere's initial estimate was about 45 minutes. That's not too bad for rendering, but this is an area where a faster processor really helps.

The next step is a simple project but I have a more complex production I'm working on with more complex editing and use of titles etc. I started in Premiere Elements 2, and I'm looking forward to finishing it in the new version.

By David Tanaka

Premiere Elements 4

Shiny screen and beyond

The main story with Premiere Elements 4 is digital. You can now more easily send your finished videos to more places. Premiere supports output to acceptable Blu-ray, sponsored output for YouTube and will also format your video for the small screen—video iPods, smartphones, etc. The always been impressed with Premiere Elements — you get a lot of video editing power for a modest buck, and that's still true.

For my test project I chose to make a DVD at a demonstration I videotaped at a conference last summer. I won't exactly claim cheerfully as I was stuck with just one shooting angle—from my seat in part of the audience in a lecture hall. Thing is, I had wasn't consistent, so I captured 23 minutes of video as best as I could. Unluckily, a really camcorder. The demo shot naturally fell into four segments, so all I wanted to do was create up some of the entry bits of video, add subtle timing and chapter markers and write the production to a DVD. This was a walk in the park for Premiere Elements. Using a PC Card Project port, it was a simple matter of adding the footage from the burner into Premiere. Premiere split the footage of precisely the right shot for two of the clips, but it was easy enough to manually cut the

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PhotoSpree Winners

We got some really great entries for the PhotoSpree contest and decisions were, as ever, difficult to make. Thanks for sharing your creativity with us!



Loneliness

By Michael McInerney of Uxbridge, ON

None of us completely say you shouldn't put the subject away in the middle, but this is a great example of why rules were meant to be broken. The softness of the leaf bud and the mist that surrounds the background and makes the busy randomness of the tree branches together provide a portrait that accentuates the hard point form of the tree trunk. The monochromatic color adds to the overall effect.



Changing Seasons

By Stephen Tremblay of Laval, QC

The composition is very nice. Colors are highly saturated (less than 10%) but it still works for this subject. Night you drag off—a lot of levels (looking around) give the photo a full level distribution for a more dynamic effect.



Glaring Leaves

By Bobby Dixon of Delta, BC

The lighting on the changing leaves in the foreground is perhaps a little harsh but it plays well with the subject's background. The eye is drawn to the left side of the frame and the leaves in sharp and sharp contrast keep it there.

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THE RULES: You must use a digital camera to capture the subject. Shots can be submitted via email (contest@ppublishing.ca). Accompany your photo should be the make and model of the camera you used, the series of any software you used to modify the image and, if possible, the date and shutter speed you used to take the photo.

Submit your photographs, along with the information from the form below, by Feb 11, 2006. You can submit up to three photographs, all of which must be accompanied by a submission form. Entries must be submitted via email. Files should be no larger than 10MB and no smaller than 200KB. One photo per email.

Prizes must be claimed by Mar 10, 2006. Winners must provide valid identification upon claiming prize. The prize awarded are not transferable and cannot be sold or given to a third party and to be eligible to win, persons must be residents of Canada, and not employees or be domiciled with an employee of Pencil Publishing, its affiliate companies, or subsidiaries or its subsidiaries. The winners will be selected by HUB on Feb 11, 2006 from among all eligible entries received on or before contest close date. Winners will be contacted by telephone or email, in the event that they cannot be contacted within the first week following the contest, another entrant will be selected. All entries become the property of HUB and may be used in subsequent advertisements for the contest. All rights must be submitted by their artist and must be original work.

HUB's Photo Spree contest form. All submissions must contain this information. Send to contest@ppublishing.ca.

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Organize, organize!

Resolving to sort the digital shoebox

Okay, following the age-old tradition of making New Year's resolutions, let's make one to organize our digital photo collections. When you made the transition from film-based to digital photography, you might have hoped that the computer would make things easier than sorting through all those shoe boxes to find a packet of photos. You shouldn't be disappointed because if there's one thing a computer does very well, it's organizing data. The mystery comes in trying to figure out how the operating system or a piece of software does its organizing magic. One preliminary key to solving this mystery lies in two words: *but* and *yet*.

Yes, there is a constant battle being played out on your computer between the operating system and the many software packages that deal with images. Each wants to be your personal image server and each has its own ideas about the best way to serve you. Pop a memory card into your computer's card reader and Windows

might launch the download utility if you've recently bought a new camera that comes with its own image organizing software; when you install that software, suddenly it wants to download your images, and not necessarily to the same place as the OS story nor using the same naming convention for the folder if you also buy a new image editor and it has a cataloging utility, it too will want to be the one to download your images and store them in its unique way. Then there's you, the user. You may have a growing collection of snapshots emailed to you by friends and relatives that you move to an entirely new place on your computer. It's not too long before you have images stored in a bunch of places with no way to consolidate them.

First resolution: I resolve to use just one downloading and cataloging package. Products like PhotoShop Elements or Paint Shop Pro have evolved into excellent digital photography solutions, handling all the



normal processes from downloading the images from your camera, through editing and applying special effects to resizing them to the right size for posting on an online photo site, sending through email or outputting to an inkjet printer. These image-acting suites give you the best combination of power and breadth of function, up if you have such a machine, my advice is to dump the other utilities in favor of this single end-to-end solution.

If you do it starting today, from this point forward your image collection will have a clean, neat organization. Some packages—PhotoShop Elements & copies to mind—will have a “watch folder” function as part of the equation. It allows you to tell the image organizer routinely check a specific folder and add any new files to the database. Thus, if you created a folder called “pics from email” for all the pics you friends and family send you, you can have the organizer to automatically catalogue new photos you put there.

Benito's posing some order on how and where you download your images, cataloging utilities bring a lot of additional power to help you find a particular image months or years later. You can assign keyword tags to a group of photos, and then later find all the images with that tag. The tag could be the same of the person in the photo, or a location spot—virtually any name or phrase can be a tag. Alternatively, you can assign a rating to images—for example, five stars to your favorites—and then at any given time, find all your five star photos. Of course, these can be used in combination—tags for all the images of your child, with a rating system to identify the best ones.

For all the images you have scattered on your hard drive before you got organizing religion, you can work through bringing those into your system at your leisure. Most cameras made in the past five years collect a lot of additional information called *metadata* and store it with the image file. If you made sure to set the camera clock to the right date and time, that information will be stored as metadata, so you can use it to chronologically organize your images, for example.

One of the main problems with “watchable” folders of images is that you never realize you're missing the images until some month triggers a dim awareness of, “Oh yes, I forgot about this—I'm sure the photo is here somewhere.” If you're switched to a new computer in the interim and scrubbed the hard drive before donating the system, those images may be gone forever. Thus, a second resolution to make it: I will back up and archive my hard drive.

Backing up is such a well documented procedure that I don't want to get into the details of it here. But I will mention one slight variation of it, which is the archiving function you might find as part of your image editing suite. Rather than backing up the whole hard drive, you create an archive of just the photo collection. You should do both—the photo archive for the convenience of having all your images in one place, and the overall disks backup to make sure those smart photos you forgot about, get backed up too.

By David Tenkels

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DV or Not DV: We have you surrounded

Audio follows video... sometimes

The first time I watched a home video in a surround sound home theater, I felt like that guy in the Matrix—pushed deep into the chair, hair blown back, sweat sticking straight out. We were only watching highlights from my friend's daughter's eighth birthday party, but the surround sound had the effect of dropping us right in the middle of a group of hyper-charged kids having a blast! Okay... you might not want to relive that too many times, but excellent audio and surround sound can create an amazingly immersive experience from almost any home video.

The above statement is only qualified because audio often takes a back seat in video production. And why not? For the most part, we only listened through tacky, tony little speakers on a TV set. Now, of course, an more of us surround ourselves with sophisticated home theatre systems, only the highest quality audio and video will do.

So it was great to hear back, yeah! that this issue of HJ! The Computer Paper would be primarily dedicated to sound. Of Or Not Or has had

articles about audio for video in the past—in April of 2007 and in a two part series in November and December 2006. And while I like to remind my video production students that pictures without sound—silent movies—did years ago, sound without pictures—radio—no alive and well, thank you very much.

Whether you are working strictly in a two channel radio or stereo environment, or if you do enjoy 5.1 or 7.1 surround sound capabilities while watching your own video and DVD creations at home, a little extra time spent producing and tweaking your audio will pay off in the end with a more immersive and enjoyable video presentation.

Some of you will know already that camcorders boasting surround sound capabilities are available in the consumer market. Sony's DVD camcorder (DCR DCR-308, about \$599) is one of that company's camcorder line-up that adds a three dimensional sound to its recording characteristics. The on-board camera mic and audio processing sub-systems do mimic the

characteristics of financial performance, and will add a fullness to regular or surround sound playback.

But true surround sound from a single mic is tough, if not impossible. Most mics are designed with a specific pick-up pattern that gives them their unique capabilities, and allows them to meet the demands of specific applications. Often, they reject sound from one direction in order to focus on sound from another direction.

Use an Omnidirectional, cardioid or others are among different mic types but whatever the name, the pickup characteristics can actually be drawn on paper to represent its hearing pattern.

Recently, Toronto-based company Polaris Sun developed some cool microphones with truly three-dimensional pickup patterns that have a hearing footprint that covers multiple frequencies and positions. The Holophone (actually, a family of surround sound microphone products and systems) uses multiple mic capsules, mounted in a world-looking, futuristic design. Its large elliptical shape points the relatively-mounted

Great DVD Moviefactory 6



mics into a highly directional (also Holophone mics are used for broadcast events like live sports) you've heard them in your surround sound HDTV home theatre if you watch Hockey Night in Canada in HD, as well as motion picture and video game production.

Now, the company has confirmed it is



working in a consumer version, nicknamed the Holophone mini. It looks like a toy, but it really works with a little feedback on top, and it mounts on the front of a camcorder. There is a SuperMini Holophone too, also designed for video camera mounting, but it's too big for most consumer camcorders designed more for shoulder mount pro cameras. Its built-in processing and transceiver unit is about the size of a deck of cards and the planned consumer model seems to have shrunk the size further.

So home videographers do have some surround sound record capabilities, and more are on the way. Even without true surround sound, good recording techniques and some clever "pancording" in the editing of your home video can be a creative alternative.

Pancording is using the panning/tilters on hardware audio boards or the virtual panners in video editing software to make sound follow camera. With a car editing through the frame from left to right, the onscreen action can be reinforced by shifting the audio from left through center to the far right as the car goes through the frame, for example. Most video editing software will let you work with multiple audio tracks, and each can be panned across the left-right stereo spectrum with good results. So, too, may DVD authoring programs let you create surround sound mixes, even with stereo source material. Some are as easy as dragging and dropping a sound clip to digital file from takes off your camcorder, a music file or whatever, and dropping it right on a little speaker icon. One of five dropped in a surround sound digital capable program.

My friend used Apple iMovie and DVD and recently he seen Core's iMovie DVD Movie Factory at work too, with its 5.1 surround sound capability. In all honesty, it is pitting to be so productive and creative with surround sound audio-video production that either side of the equation might dominate your end creation.

An audio editor's friend!

Just before we head to G-95, a quick word or two about a great way to listen to great sound at your computer: not something that caught my interest when I came across it recently.

Canadian company Acousti Audio's new Audiotility Luxury PC Speaker System delivers 55 watts per

channel, 110 is total. Hardcore video gamers will go crazy; sure, but video editors and DVD authors will hear their work much, much better. One of the society of great sound production is equipment that gives the editor the full range of the sound he or she is working with. Thus two compact speakers plus a dedicated stereo amplifier and optional subwoofer. Each enclosure contains a 3 inch titanium dome tweeter and 5-inch aluminum cone woofer with rated 100-20,000 Hz frequency response and 8 Ohm impedance.

They sound good, and they are designed to look good, too. The speakers come in seven different finishes, from synthetic

metallic marble to banded lacquered walnut. The marble black amp fits on a shelf, desktop, counter top or beneath a desk.

So the well-configured Audiotility system isn't only boasts PC-based listening, but of course, Apple iMac and other digital audio players as well. The amp has a USB port, to both play music and charge the device.

By Lee Richmond

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Beyond embedded audio

When you want more from PC sound

PC audio has come a long way since the first AdLib and SoundBlaster add-in cards gave a telephone voice to the monochrome PC. Today, all colorists and most desktop PCs have stereo audio circuitry embedded on the motherboard—and sometimes even 5.1 or 7.1 surround sound. This is a fine progression in PC design since today's PC often serves as our personal multimedia center, and having good audio enhances our enjoyment of the music, videos, movies and PC game sound tracks, etc.

But separate add-in sound cards are still being made. The most common reasons to use an add-in card are to increase the audio quality or the functionality of an existing system, for example, adding surround sound if your embedded PC sound system offers just stereo. For desktop systems, a PCI sound card is still the least expensive way to go, and PCI cards from Creative, Turtle Beach, Diamond and others offer 5.1, 7.1 or 8.1 surround sound, 24-bit

analog-to-digital and digital-to-analog conversion, digital and analogue I/O, full-range frequency response and very low signal-to-noise ratios—far under \$100. For specialized applications like professional digital audio workstations there are a few hybrid solutions like the MAudio Delta, but even for non-professional audio enthusiasts, the quality of sound cards has reached a high level. Creative claims that its XFI line better the older SB Audigy's performance on a number of measures including processing speed and signal to noise ratio. The XFI family includes an audio tuning system Creative calls Active Model Architecture, which lets the user choose one of three audio modes for gaming, entertainment or music creation.

Often it's your notebook that needs audio fix and fortunately a few companies make some USB 2.0 based external sound cards or cards that can be inserted into a notebook's PC Card or ExpressCard slot. For example, a few

years ago Creative introduced the SoundBlaster Audigy 2 ZS, a PC Card-based sound card. More recently the company introduced the Sound Blaster XFI Extreme Audio notebook card in the newer ExpressCard format. USB sound cards are separate boxes that connect to a computer via the USB port, so they will work with both desktop and notebook computers. The Turtle Beach Audio Advantage 380i, for example, is an external USB sound card that supports 5.1, as well as 7.1 surround sound. It even contains a stereo microphone.

It's safe to say that for the majority of us, the audio quality from a PC is good enough—or can be made good enough with an inexpensive add-in product. But what we use our PC for is always evolving, witness the rise of podcasting in the past few years or the growing number of audio and multimedia devices we dock to our computers. Taps to enhance your experience in these areas are coming on board too.

One of the potentially coolest products is the RedNet Live Studio for iPod. I hope this doesn't turn out to be a phantom product because it is a great concept. However, it was first mentioned a year ago, with next-summer availability, but the availability date has slipped to this month—so they should be available now or soon. The Tap Studio is a four channel mixer for the iPod—a simple description with profound implications. Basically, it allows you to mix sound from four inputs, including microphones, and record the mix on the iPod in 16-bit 44KHz.

Podcasters might be delighted in M-Audio's Podcast Factory 2 package that contains a USB audio interface and preamp, a dynamic microphone, and software. The interface isolates live and microphone inputs and the software allows you to mix your audio track with music or sound effects, then format it properly to work as an iTunes feed. Edlanger recently introduced the Podcast Studio USB, which has similar features to the M-Audio product, but includes other components as well, a mixer, headphones and podcasting software, a multitrack sequencer and a virtual mixer. The mixer supports five inputs and encodes a microphone pre-amp.

With notebook computers becoming so popular, a common problem faced by people who want to create podcasts is that extensions don't typically have a



microphone input. If that's what's holding you back, there are a number of USB microphones available. The Alessi USBMic Podcasting Kit includes a direct-connect USB microphone that sends a 16-bit 44,100 Hz (or 48000) signal directly to your computer. Also included are a set of headphones and software to record, edit and mix your production. A bit of trivia: Alessi supplied audio equipment to the Red Hot Music Academy when it held sessions in Toronto last fall.

Audio company Samson has been making USB microphones for a few years, but calls its C01U Studio Condenser mic the first "affordable" under \$100 studio condenser mic with a USB interface. The mic comes with a SoftPre applet that includes a level meter, volume control and filter, but the company says it will work without it. Thus, stress on better sound based directly is built in to a majority of newer multitrack mixers, replacing the need for a separate sound card for general PC users. Still, there's no shortage of products looking to refine and in some cases, redefine that we create and hear the sounds made by our computers.

The beats, blips, squawks and swooshes of PC speakers are a thing of ancient history.

By David Tauske

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CASE: ANTEC P182SE
POWER: THERMALTAKE 600W

MONITOR: VIEWSONIC 2235WM 22" LCD

KEYBOARD/MOUSE: LOGITECH MX3200 LASER

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HDD: WD 1TB
GRAPHIC: ATI 3870 512M *2 CROSSFIRE
DDR: LG 20X DVD BURNER
CASE: ANTEC P190-1200
POWER: ANTEC 1200W

MONITOR: SAMSUNG 245B 24" LCD *2

KEYBOARD/MOUSE: LOGITECH MX5500 BLUETOOTH

Now in glorious Technicolor

In the Lab: Colour laser printers

Black and white is so passé. Never mind the In the Lab feature lacking a monochrome laser printer that ran in our November 2007 issue. We stand by our assertion that many laser printers still have their place in the office or in a SOHO environment. They are the reliable and necessary workhorse workhorses and still for indeed if we ever make the oft talked about but seemingly no closer to reality "perfect office," they aren't looking to make an exit any time soon.

If you haven't looked at colour laser printers in a while, you may be surprised at how relatively low the prices and how full the feature sets are. These days, you can realistically buy a full colour laser printer that is networkable and that does duplex printing for under \$600. What's more, the resulting full colour presentations, prints, graphics and charts won't look much different than the prints you get at a retail business service printing shop.

Colour is a simple way to help reinforce your message in printed products. Whether it's an otherwise drab wall of black and white text made more accessible with a colour graphic element like the most popular per chart or an illustrative chart to drive the point home, colour makes business documents more accessible and more likely to be read. Printing company letterhead in full colour can make an all-important impact on clients. For the SOHO and independent business owners, printing your own stationary saves money and makes the outfit look that much more professional.

With the cost of high quality colour laser printers dropping to landmark lows and with print quality at all time highs, the time has never been better to make the investment.

All of the printers tested in the Lab this month come in under \$500 and performed widely, offering at least reasonably fast prints, sharp black and white printing and high quality colour. Details on each of the five colour laser printers tested follow.

Lexmark CS32n



CS32n

Lexmark www.lexmark.com 5439
Dimensions: 41cm x 47cm x 36cm Weight: 25.1kg
PPM (manufacturer supplied): 24ppm B&W
21ppm colour
PPM (real world, monochrome, default): 15.6ppm
PPM (real world, colour, default): 11.2ppm
PPM (real world, mono, duplex): N/A
Duty cycle: 75,000 pp/mo
Connection: Ethernet, USB

Lexmark's CS32n is a well thought out machine and a solid performer for small or large print groups. Its 75,000 page per month maximum duty cycle will keep even large offices with moderate colour needs running smoothly and potentially saving unpaid trips to an outside print shop for colour jobs.

The CS32n comes in sub-\$500 like many of its counterparts in the Lab featured and is a non-duplexing printer. The virtually identical CS32n adds duplexing capabilities for another \$250 on top of the price. To take full advantage of Lexmark's resource and energy saving modes, the duplexing model is the way to go. Lexmark has paid very close attention to lowering the overall resources use of its printers, which is a good thing for both the environment and your wallet. The company deserves credit for the attention it pays to ecological and economic concerns.

In four line monochrome LCD display is not a fortunate and difficult to see when needed. The LCD offers easy access to the on-board menu and gives access to, among a great many other features, the aforementioned "eco mode," a power-saving laser reset setting that saves in more ways than one.

The CS32n is a very speedy printer; the company claims 24ppm in monochrome and 21ppm in colour in its best test scenario. In conditions in our real world tests, we saw in monochrome 18.6ppm at the printer's default settings with the first page of our 10 page black and white test document hitting the finished tray in 35.6s. Our colour test document cleared in 42.3s or 14.2ppm.

Black and white printing is of very high quality and, even in draft mode, creates an instantly readable document with no overly heavy text or lower quality. Using the named settings, the quality is on par with dedicated mono lasers. Business graphics are output clearly. Detailed colour graphics and even photos are output very clearly with minimal banding. It won't replace a dedicated photo printer, but it's more than adequate in a pinch. All colours and screens come through bright, clearly differentiated and clean with only a slight banding visible on a non-validated blue background.

The 250 sheet lower tray can be expanded to accept legal size paper and with an additional \$300 sheet feeder add-on, the paper capacity can be boosted to 800 pages.

An enclosed 375MHz processor and 128MB of RAM, expandable up to 640MB keep things running smoothly and makes spooling time next to non-existent for simple documents and general use printing.

HL-4040CN

Brother www.brother.co 5439
Dimensions: 41cm x 35.5 x 47.5cm Weight: 29.1kg
PPM (manufacturer supplied): 21ppm B&W
21ppm colour
PPM (real world, monochrome, default): 13ppm
PPM (real world, colour, default): 13.6ppm
PPM (real world, mono, duplex): N/A
Duty cycle: 35,000 pp/mo
Connection: Ethernet, USB

Brother's HL-4040CN is an excellent half way point between home style and office colour laser printers. Its 35,000 page per month duty cycle and respectable print times mean it's well at home in a small office or small to medium enterprise workshop. However, it could be equally in the SOHO as the mainstay home printer. Both business and personal, thanks to its PhotoDirect connection that allows for direct from camera printing. Users can choose to create an index print of all images on the camera's storage and then select the ones they want to print off. Photo printing quality is quite high but won't replace your dedicated photo printer or photo riglet.

Its 16-line LCD panel is very readable and menus are easy to navigate using the pseudo-touch LCD screen (press or touch in a moment) and simple directional button array. This monochrome text LCD screen offers up for easy viewing and, as a real red uncorrected status touch, the left-right changes colour to indicate status. When everything's running smoothly, the LCD screen is black/green. When it's processing a job, it turns yellow. If there's a problem, the backlight turns red. This is a really simple and intuitive way of getting an immediate idea as to the printer's status from across the room so you'll know if you need to get up from your chair to reload the paper tray or replace a toner cartridge or if you're job is just not printing because the colour is long or a big job is spooling. Our 10-page black and white document cleared the printer in 46.1 for a ppm of 13.4 off the mark from the 21ppm Brother suggests but not out of the ordinary for the printers in the Lab. Text quality is equal to that of a quality mono laser. When printing colour, the page per minute count normally climbs to 13.6ppm C/D.

Brother HL-4040CN



page document in 44.2s but still offers smooth and clean output for business graphics though it lost detail of low intensity oranges and yellow on an 80 per cent white screen. Similarly, saturated blue was almost lost to the grey card screen. Printed photos are of good but not excellent quality, sufficient for a presentation but not showstopping. This is not unique to the Brother unit however.

While its monthly duty cycle might suggest the printer is best at home in a workshop or small to medium sized office, its paper handling capacity says otherwise. There's a 250-sheet tray that can be expanded to accept up to legal size paper along with a 50-sheet multipurpose tray for feeding in letterhead or other media, but that's it. There are no paper expansion options here and there is no duplexing 600x60 or version of the H.45000 model.

One particularly neat touch is the password protected print option. If you're printing a confidential or otherwise sensitive document, you have the option of sending the job to the printer, password protected. Upon sending the job, you can walk over to the printer, select your user profile, enter your password and receive the document. A nice change from the click and dash method used previously with "for your eyes only" documents. There is also a one-button option to reprint the last job, useful if you want to do a final check for alignment on the finished page without connecting to the full print run or running back and forth between PC and printer.

Under the hood, 64MB of RAM is upgradeable to 576MB and a 300MHz processor keeps things running

2605dn

HP www.hp.ca \$449

Dimensions: 19cm x 36cm x 36cm (WxDxH)

Weight: 19.9kg

PPM (transfaster/supplied): 12ppm B&W,

10ppm colour

PPM (real world, monochrome, default): 11.5ppm

PPM (real world, colour, default): 8.5ppm

PPM (real world, mono, duplex): 8.1ppm

Duty cycle: 35 000 pgs/ma

Connection: Ethernet, USB

The 2605dn is a good bet as a specialist duty small workgroup or SOHO colour laser. It's a 250-sheet, non-expandable paper tray can handle up to 11x14 (legal) paper and the documents it delivers are of high quality, very sharp mono text at the printer's factory default settings and sharp colour with little of the banding that can occur with nonextensive colour laser printers.

The LCD is a two-line monochrome and is unfortunately quite hard to read in all but the most optimal situations. It offers a rough gauge on how much toner is left in each of the individual cartridges along with standard printer messages left to use is limited. Also, owing to the limited amount of information the screen can display and the limited menu navigation buttons—just left, right, OK and cancel—it is difficult to navigate a few.

The real story here is perhaps the most important story of all: the 2605dn has excellent print quality for both colour and monochrome documents. Text is reproduced crisply and clearly with none of the splodging or overly heavy printing that can plague

colour lasers. Similarly, colour elements are produced clean and sharp. It can even handle subtle gradations of colour without visible dithering or blocking of high print quality. Slight banding and a slight fuzzy pink area was seen with one test pattern print of saturated blue. Print speed is not far off the stated mark of 12ppm for mono and 10ppm for colour. Our 10-page test bed document net a real world print count of 11.5. Our 10-page colour document prints it through in 1m 3.8s for a colour ppm of 9.4, again, not far off the stated 10ppm mark. Duplexing our mono document didn't impact print time overly, our document cleared the printer in 1m 14.2s for a duplexed 8.1ppm.

Under the hood, a 300MHz processor and 64MB of SDRAM expandable to 576MB runs the show.



HP 2605dn

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Magiclec 2550 EN

Konica Minolta www.konicaminolta.co.uk 5671 30289
Dimensions: 43cm x 34cm x 30cm (WxDxH)
Weight: 22.5kg
PMM (manufacturer supplied): 20ppm B&W
30ppm colour
PMM (real world, monochrome, default): 35 tppm
PMM (real world, colour, default): 5 tppm
PMM (real world, mono, duplex): N/A
Duty cycle: 35,000 ipm/mo
Connection: Ethernet, USB

Printing quality colour prints at something of a laborious pace, the Konica Minolta Magiclec 2550 is, best, has a relatively small footprint and at very simple to set-up and operate. All in all, it's a fine choice for any smaller office with moderate (or lower) colour printing requirements: quality isn't bad, but with high expectations quality isn't. If you can wait a minute for three pages, you'll be in good shape, the 2550 B to it took to print our 10 page colour test document equates to a 5 tppm. The slow printing does not affect the mono printing fortunately. Our 30 page black and white test document found the printer in 37.3 s at a pretty speedy 16 tppm.

Print quality of our black and white document was excellent with sharp and very readable reproduction of a variety of fonts and sizes, serifed and non-serifed. Our colour test print showed a little confusion with low intensity yellow on an 80 per cent white background along with slight blurring of non-saturated blue font on 58 per cent black background and no banding. A 200 sheet tray can be supplemented with an optional 500-sheet add-on tray and cassette for a 700 page

maximum capacity. The output tray can take up to the full capacity of the included paper tray: up to 200 folded prints. To speed the machine's capabilities and scalability in a variety of applications, there's an optional 4000-sheet drive add-on that can be used for downloaded fonts, to store jobs, PDF printing and other tasks that require more than 100 temporary memory. The Magiclec 2550 is an enterprise small workgroup printer from a company well known for its large enterprise level document management systems. You likely won't be disappointed, though there is still some work to be done to make the 2550 a hands-down recommendation.

A duplicated version of the printer is also available. Called the Magiclec 2550 DN, it adds another 120MB of RAM to the 120MB included in the Magiclec 2550 EN (as listed for a total of 256MB). Both models are appropriate to 640MB. If necessary and both use a 300MHz PowerPC processor at their core.

While at 5671 30289, a quick search suggests that the printers is available for considerably less (either the 5500 set or the on-line for sale in the Lab).

CLP-300N

Samsung 5349
Dimensions: 38.5cm x 25cm x 34cm (WxDxH)
Weight: 13.9kg
PMM (manufacturer supplied): 17ppm B&W
4ppm colour
PMM (real world, monochrome, default): 14.3ppm
PMM (real world, colour, default): 3 tppm
PMM (real world, mono, duplex): N/A
Duty cycle: 24,200 ipm/mo
Connection: Ethernet, USB

Samsung's CLP-300N is a remarkably small colour laser printer. Its lower duty cycle, 150 sheet paper tray and super small footprint relative to other colour lasers make it well suited to a smaller or home office where printing isn't going to be very hot. Also, it's a good choice for workgroups through home users and small offices may be able to cope.

In keeping the device's footprint down, Samsung had to do a little lateral thinking, it seems. Rather than offering lower cartridges with the drum incorporated into the whole, in most colour lasers, the printer separates the components which makes for tiny laser

cartridges and a stand-alone drum. Rather than replacing the whole assembly when a colour has run down, only the laser itself and its carrier cartridge are replaced. This is a cost savings as the drum typically outlives the laser.

When printing in monochrome, the CLP-300N is a capable unit, sorting out pages at slightly more than 14 per minute. However, opting to spruce up a presentation with some colour will cut the printing time drastically to in the order of just over 3ppm. Your late night trips to the print shop as deadline looms may not yet be a thing of the past.

Print quality is good if a little overbearing in black and white, at the default printer settings, black text is laid down so heavily that it almost looks embossed. Dulling down the quality saves on toner and offers a finished product that is, counterintuitively, much more readable. The printer isn't the deal of low intensity orange and yellow text on an 80 per cent white background. Saturated blue text lost in a grey dot background and likewise, black text on saturated blue was difficult to distinguish. In opting for more detailed graphics or photos, some overexposure issues near their heels, along with a bit of banding in some instances.

The CLP-300 and 300N printers exhibit the LCD screen, which helps to keep the size down but that doesn't do a great deal for PC-free home adjustments. A 100MHz Samsung processor is adequate for most users. However, the 300N of an 80MHz RAM that can't be expanded is sufficient for anything beyond moderate sized office use.

By Andrew Moore-Crispin

Samsung CLP-300N



Konica Minolta Magiclec 2550

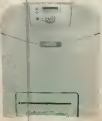


Editor's
Choice

HUB: The Computer Paper's Editor's Choice award
is awarded to the best performing device or service in the monthly in the Lab test feature. With the HUB: The Computer Paper's Editor's Choice award, readers can be assured a product stands above others tested against the same criteria as outlined in the Lab.

Lexmark's C532n

For its speedy print times in both colour and monochrome, its high duty cycle, its excellent reproduction of both colour and monochrome graphics and text elements, Lexmark's C532n is awarded our Editor's Choice seal. The C532n is a perfect balance of price and performance, equally at home in a high duty cycle home office or as an enterprise station in a workgroup requiring both colour and mono printing capability. Lexmark's attention to the ecological concerns also makes eco-friendly sense for users, which means the eco-savvy using 'eco mode' is more likely to be used.



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Ultraportable powerhouse - part two

Choosing and installing your distro

After a brief hiatus, we revisit the Ultraportable Powerhouse series to start downloading reliable distros and files and actually bootstrapping (in a sense) Linux onto our USB drive. We're the aforementioned 4GB Crucial Constant which has been formatted using the likewise aforementioned 3MB downloadable application that wipes the SanDisk drive clean.

The first in the Ultraportable Powerhouse series generated quite a lot of reader feedback including suggestions for Linux distros to try out, suggestions of specific USB drives that you have had some success in using along with the usual incoherent rants and comments both critical and complementary. We appreciate all the feedback.

It's hard to start

Many of the Linux distros that are perfectly designed for running from a USB key were developed by an individual or a small and dedicated team. Often, it's a hobby that morphs in to much more when a community and a user base forms around the distro. As such, there is a lot of call for even small distros. All of the distros we're looking at here are completely free to download and you can buy and distribute as many as you like to friends and family. However, if you find yourself using a particular distro all the time and are impressed with it, consider making a small donation to the team. \$20 is not really a lot to ask for a full operating system.

Some limitations

Sometimes, when opting to run the operating system from a USB drive as opposed to naively installing as a bootable partition on a desktop or laptop computer, you'll find yourself limited in the version of the OS that you're able to use. By way of example, when installing Ubuntu to a bootable portion of your USB drive, support documentation only really covered installing version 5.02. Reason being that the "persistent" element of subsequent versions (that saving and storing changes made while using the live CD/OS) didn't work. Since the official release of Ubuntu 7.10 (codenamed Gutsy Gibbon) in October of 2007 and given all the improvements that came to the OS with the full version number jump, this presented a serious issue. There have since been fixes released but the best solution didn't cause lose Ubuntu and require some tweaking.

There are versions of Linux that are specifically designed to run from a USB key for CompactFlash card, CD, SD card, portable hard drive... but if you're used to and comfortable working with a particular distro, it's probably worth it to go through the usual nightmare to get it installed on your trusty USB key. For some distros, it's as simple as downloading an ISO or other disc image file, unpacking it and dragging it to your USB key under either Linux or Windows.

Give it the boot

First things first, you'll need to check if your BIOS allows for booting from USB. For any PC or motherboard made in 2004 or later, not allowing for

USB booting is severely unacceptable... but still entirely possible. If there is a firmware update for your motherboard that will allow for USB booting, download it. Read all the precautions that come along with it carefully. Beware! Not go for it if the firmware update exists, all is not lost. However, rather than carrying around just your wires, try and stick USB key. If you need to create a bootable CD-ROM to in turn boot your USB key. The appropriately titled *Ultimate Boot CD* (www.ultimatebootcd.com) is a great place to start. If you're traveling and plan on using your USB PC, you may want to consider packing along a bootable floppy in case you encounter older machines that aren't able to boot from USB.

Be adaptable

This story was originally planned as a step-by-step guide to getting Ubuntu up and running on a USB key, for use with just about any system that can boot from a USB key. However, a few reader suggestions brought a bit more of a specific ground and it became clear that it shouldn't be as complicated as the 20+ step process for making a USB bootable version of the particular distro. Moving away from Ubuntu and its derivatives, we found a whole world of drops tailor made for USB installation. We've to follow the step-by-step tutorial idea for some of these distros, it would look something like this:

1. Download and burn Live CD ISO file
2. Restart PC and boot from Live CD
3. Click "Install to USB drive"

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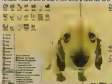
Poppy Linux

www.poppylinux.com/ | www.poppylinux.org

Install size: Varies with package

Recommended minimum drive size: 512MB for minimal install, 128MB with extra applications and storage

This really is one smart poppy and an excellent candidate for a USB key install. It's similar to Damn Small Linux in that it tries to keep things down, both in the initial download and in the install. It's perfect for running a browser and doing standard stuff like email. There are packaged versions that include a batch of applications like a word processor, simple spreadsheet program, vector image editing, games and more. By far, the real trick is that it runs entirely in RAM where possible, making for one fast and efficient operating system even when booting from a live CD. Another neat trick is that it can write a save file to a



new track on a standard CD-R so that your session is saved. Part of Poppy Linux design philosophy includes running on older computer architectures and running on diskless thin client PCs. Upon exiting the live disc, users are also presented with the option to save out their changes to a portion of the hard drive or to external storage like a USB key.

It's amazing how much Poppy Linux does for you: getting a wireless network card recognized and connected was literally a matter of a few mouse clicks then entering the WEP key. Getting a wired network up was even easier. Getting an on-board graphics card and microphone to appear up and running was likewise painfully simple and something many other distros either tried to do or have a very hard time getting. From the live CD, running Poppy Linux is literally as simple as booting, clicking a few options and going. This makes it an ideal introduction to Linux, especially for older hardware.

The initial process for getting Poppy Linux onto a USB key is equally simple. Perhaps the easiest way is to select and download an ISO image from the homepage user community compiled packages, run the CD live and then choose "install," choosing the installation to your USB key. If you have existing data on the stick, it gets a little more complicated and requires partitioning (though there are several options for booting after this task, some simple, some not so and installing a master boot record).

Damn, that's snafu

Damn Small Linux

www.damnsmalllinux.org

Current version: 4.0

Install size: Varies with package

Recommended minimum drive size: 512MB for minimal install, 128MB with extra applications and storage

As the name suggests, this is a Linux distro that is designed to run as lean as possible while still including a reasonable suite of applications to make for a usable system. Users can configure the install to run as a system as snafu as a 486 with 128MB of RAM. In this case, you'll certainly need to create a bootable floppy to go along with your install.

The DSL project apparently started as an experiment to see how many applications could be fit on a business card size CD-ROM. DSL has a large and dedicated community working to tweak and adjust it. DSL is a more complex OS to use, especially when compared with the likes of Poppy Linux. Also, it doesn't automate as many of the standard tasks like setting up a net connection, choosing a monitor resolution etc. If that a new user will need to look after. As such, the barrier for entry is a little higher.

Installing to a USB key is as simple as burning the DSL ISO image to a CD, running a live session, right clicking anywhere on the desktop and choosing "Tools" to install to USB. However, DSL has the drawback of being the smallest install and can realistically be run and used in a 128MB USB key with some packages and extras installed. In a pinch, it can also run from a 512MB drive but that won't leave a lot of room for storage.

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Reference Chart

Normal Breathing 18dBA Inside a House 30dBA
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No one said love would be easy...

Ubuntu

www.ubuntu.com

Current version: 7.10 (Gutsy Gibbon)

Install size: 679MB

Recommended minimum drive size: 1GB

Getting the latest version of Ubuntu to run on your USB key is no mean feat. While other installers have applications custom made to get your Linux install up and running from a bootable USB key, with Ubuntu, you're going to have to complete many more steps, download and burn ISOs and dig in to the Linux Terminal, looking out long test strings to format, copy files, install packages and generally make the thing work.

That said, Ubuntu is also one of the better supported Linux distros and has a strong user community that can answer many of your Ubuntu-related (if not specifically Ubuntu on a USB key-related) questions.

A visit to help.ubuntu.com (www.gandhitekn.com) and the 25+ user forum hosted there (forum.ubuntu.com) may look intimidating. It's not that scary though and has the added benefit of helping beginners to get some familiarity with Terminal

and so on. Once you get comfortable with and start understanding Terminal, Linux itself feels a lot less intimidating for novice users. Given this route also allows for a bit more customization such as using only a portion of your USB key for persistent filestorage and storage, leaving another portion free for home or office use on a Windows or other operating system.

Are you getting fresh?

Linux Mint

www.linuxmint.com

Current version: 4.0 (Dorina)

Install size: 661MB

Recommended minimum drive size: 1GB

Linux Mint is a remix of Ubuntu and is tailor made for USB drives, not treated from the ground-up with USB installs in mind but with a simple means of installing (also put up by Penetration.com) (<http://tiny.cc/m7Qp2p0>).

Linux Mint is a painless and trouble-free distro with decent hardware support and a strong user community on the occasion you run in to problems. It eschews the heavily scaled back and pared down graphical user interfaces of some of the smaller Linux distros without

bogging down moderately spec'd rigs like Ubuntu can. It is an excellent candidate for new users. Doing the initial install is a relatively simple and painless affair. While Getting Linux Mint on to a USB key is nowhere near as complicated as getting Ubuntu to run from USB, it is more complicated than either Puppy Linux or Damn Small Linux but offers an ultra shiny (at not overly taxing interface. Think of it as the best of both worlds.

There's no such thing as one operating system for everyone. While some of the distros listed here are nearly 700MB downloads, it's worth checking out a few to see what works best for you and with your PC. In our own experiments, we've found some distros that work perfectly with both home and office PCs, some that offer graphics tweaks and powerful applications to replace your existing desktop setup and some that don't even seem to exist in the wild. The moral here? For what it's worth, Puppy Linux is the distro that's staying on my USB key and the developer I'll be sending my \$20 to.

By Andrew Moore-Cropan

Less noise, more sound

HUB: TCP lends an ear to noise-cancelling headphones

Many airplanes now have LCD screens for each passenger. These can make a four-plus-hour flight more bearable. Some of you can select what you want to watch—old or new movies, TV shows, news, sports. Whether you're watching the in-flight entertainment or have chosen to pack your own with a video player, DVD player or laptop, it's unfortunate that the video is often drowned out by the dull roar of the jet engines. Time to reach for the noise-cancelling headphones.

Action vs. passive noise reduction

Series noise-cancelling headphones work by sensing out the noise with either on-ear or over-ear soundproof caps or in-ear buds. This is called passive noise reduction.

The effectiveness of this depends on the sound-deadening material used, but they can cut out a lot of noise, like a good set of acoustic earplugs. That's also their potential drawback: we get a lot of cuts from sound, particularly in an urban environment, and cutting yourself off from them isn't a good practice.

Active noise reduction headphones contain microphones that pick up environmental noise and noise-cancelling circuitry that produces inverse sound waves—antibose if you will—but cancels out the offending noise. Headphones that use active noise cancellation can range from quite affordable to very expensive—we've seen products listed at under \$100 to more than \$400. The advantage of active noise cancellation is that it reduces much of the steady droning that you encounter in an airplane cabin, bus or subway car, but doesn't completely obliterate the external environment—you could hear if someone talked to you, for example if you didn't have your noise volume too loud.

Some models will use both types of noise reduction so that when you put them on, you notice a decrease in environmental noise (and from the soundproofed caps, even with the noise reduction circuitry turned off).

Versatile function

Noise-cancelling headphones need a bit of electricity to operate the circuitry. Typically, use one or two AAA cells is enough. This means that active noise-cancelling headphones can be a bit heavier than standard headphones, so make sure you try them on to see if they are comfortable. On-ear or earbud models will have a separate module for the battery and the circuitry attached to the cable.

Another function to keep in mind is whether the headset will work without batteries. Of course, the active noise-cancelling function will require power, but some sets need batteries to work, whether you use the noise-cancelling circuitry or not.

I've used cheap, active NB headphones that seem to add in some white noise, which helps mask the background noise. When you activate these without a music signal, you hear a faint but distinct buzz. They also boost the music signal a bit. There is a combination can combat the droning of an airplane engine well, but with higher-quality sets you can get effective noise reduction at low mid-level volumes, and no hiss.

The small sample that follows are models we've actually had our ears for hours at a time. The Audio Technica ATHANC7 and Panasonic RPNC500 set for around \$200, while the Panasonic RPNC30 goes for around \$150.

Audio Technica ATHANC7 QuietPoint
Recently given a CES Innovation 2008 Design and Engineering award, these over-ear headphones are somewhat large but quite comfortable. With the noise-cancelling system turned off, the caps muffle the background noise a little bit, but once you turn the system on, background noise is very noticeably reduced. They also sound very good. Frequency response is 10Hz to 25kHz, which surprises the noise of normal human hearing on both the low and high frequency ends. For ballads or classical music where the lower range is broad, they are great—you can fully enjoy the quiet passages. This is also a big factor for in-flight movie watching, as movie soundtracks often have a very broad noise range.

Audio Technica states the noise reduction performance of the QuietPoint headphones in two ways: they reduce background noise by up to 30 per cent, and up to 25dB. That's hard to put into a meaningful real-world experience, but be assured that they work very well.

The headphones come with a detachable cable, so you can wear them sans audio cord if you just want the noise reduction. The standard cable uses a mini stereo plug, but the package includes a two-pin adapter for use with airline audio systems as well as a 1/8-inch adapter. They come with a semi-rigid padded case that won't take up too much room in your carry-on.



Panasonic RP4HC30

This unit looks, feels and sounds a lot like the Audio Technica ATH-ANC3 (which is not a bad thing—both sound great and are comfortable to wear). Both have the noise cancellation switch on the left earphone where the battery compartment for one AAA cell also is located, and both use a blue LED to indicate that the circuit is on. However, some ergonomic as well as aural differences are worth noting—and the specs are not the same either. The Audio Technica phone's sound levels (louder to me, and initially I thought I liked them better). But over time, the more neutral output of the Panasonic set grew on me. The differences are subtle, and a lot will depend on your personal preferences and the music you listen to. The Panasonic's cups felt a little bigger around my ears, but the headband seemed a bit stiffer and tighter. I found the Audio Technica phone a bit more comfortable for extended listening, but that wasn't a big factor unless I had them on for more than an hour. The Panasonic unit is marginally lighter—175 grams vs. 200 grams for the Audio Technica unit according

to my kitchen scale.

Spec-wise, Panasonic states up to 35 per cent noise reduction with the HC300, with active noise reduction of up to 20dB. Stereo frequency response is 10Hz-20kHz. Like the Audio Technica (Decent), the HC300 has a detachable audio cord so you can wear them and for noise reduction without worrying about the cord getting in your way. It comes with a semi-hard zippered carrying case that's marginally smaller than the Audio Technica case, and also comes with a two-pin power adapter and a 1/4-inch standard audio converter.

Panasonic RP4HC30

If it's purely look of over-the-ear headphones is not to your taste, the Panasonic RP4HC30 might fit into your wardrobe. These unobtrusive over-the-ear headphones sound amazingly good and the active noise cancelling circuit works quite well. I did notice a hint loss on some music sources, but not at all when the noise cancellation circuit was switched off. The earpiece covers are surrounded by soft rubber over that

conform to the shape of your ear canal. The unit ships with three sizes of cups. I found them quite comfortable. The HC300 has a separate module on the cord that holds the battery and a couple of other controls. There is a "Monitor" button, which makes the audio and turns off the noise reduction. This allows you to converse with someone without having to remove the earbuds. Also mounted on the module is a volume control rotary dial. There's a sliding power switch and a small red LED that indicates when the active-noise-cancellation circuit is turned on. The module has a clip on it so you can attach it to your pocket or clip it somewhere out of the way.

In terms of noise reduction, while the HC300 can't compete with around-the-ear wearing properties of the HC500 or Audio Technica units, they're better to have a noticeable effect. Panasonic states the over-all noise reduction at 25 per cent, with frequency response of 10Hz-20kHz. These slip with a two-pin power adapter and a cloth carrying pouch that takes a up fairly any room at all, making it a good choice for anyone that likes to travel light.

By David Torata

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Data courtesy CanadianGSP.com. For head-to-head comparison and the most recent GSP information, visit www.CanadianGSP.com. While we strive to bring you the most accurate and up-to-date information, please contact GSP to confirm details.

The Last Byte

If I had a million dollars ...



During the course of a year, tech writers hear about hundreds of new products, lay their hands on dozens and caveat but a few. Here is my highly subjective list of the products of the past year or so that have stuck to my consciousness.

Adobe Lightroom Lightroom brings digital photography workflow into the 21st Century. When I think back just five years to the hodge-podge of software that a digital photographer needed to manage and edit a personal collection, Lightroom's handling of that in a single clean interface is a dream come true. Of course, it can always use improvement, but considering it is a Version 1 product, it's a bright light—and at \$300, very affordable.

Adobe Photoshop CS3 While Lightroom now handles a lot of my photography workflow, if I need to do some heavy editing, CS3 is the tool I like to reach for. This is a mature product with huge mindshare among graphic artists and digital photographers. Cost of entry remains quite high at \$800, but for breadth and depth, nothing comes close.

Alenore's Area51 Not only does this PC desktop system look wickedly alien, it is stuffed with the best on-world technology that humans have devised. There is actually a coven of Area51 machines powered by the Intel Core2Extreme family of processors, ranging from the 7500 that starts at a mere \$8,800 to the ALX Creative and ALX SLI multi-GPU systems that start at around \$5,000. If you want portability, Alenore also has the Area51 en750 notebook.

Apple MacBook Pro My 12-year love affair with backback ThinkPads has come to an end, and the 15-inch MacBook Pro is the new apple of my eye. I no longer click to the coconuts mother ship so all that enterprise stuff ThinkPads were known for isn't relevant to me any more. The state apps I use—MS Word, Photoshop, Lightroom, iDesign, etc.—are available for both Windows and Mac, and I don't know how many times that magical power connector has saved the machine from a tumble to the floor. Switching between Windows to OS? So far so good. The silver design is no longer new, but still feels fresh. The base 15-inch MacBook Pro costs \$2,300.

Apple iPod Touch A colleague showed me her new iPod Touch and in about five seconds, I was hooked. The touch interface is highly entertaining in itself, but the app catalog some useful PSA and correction functionality (W4U) too. The 8GB model costs \$329; the 16GB model costs \$450.

BlackBerry 8800 After a brief infatuation with the slicky BB Pearl, I decided that wider was okay if it meant a full thumb keyboard. I can't take the Pearl's low-res camera seriously, but I find the GPS in this 8800 is useful when traveling to new cities. The rest is to be left. With a plan, the 8800 is around \$250.

Epson Stylus Pro 3800 Ultrachrome When you have a high-resolution SLR, you can make big prints, and one of the most affordable ways to do that at home is with the Stylus Pro 3800. This model handles paper up to 17 inches wide, which means you can make 17 x 22 prints using Epson's or third-party paper suppliers' pre-cut sheets. Epson pioneered archival print quality with its fade-resistant pigment inks and the Pro 3800 uses the latest generation Ultrachrome inks. Price is an affordable \$1,500.

Nikon D300/Olympus E-3 I'll admit that I was a Nikon SLR user long before the digital era, and the new D300 is a solid advancement of the D200 as the model to bridge the line between enthusiast and pro gear. But my recent experiences with Olympus SLR gear have been very patchy, and the new E-3 could be the model to move me off the Nikon path. The camera is on par with anything else in its price class, but I think Olympus has crested a stellar line of small, light and fast (f2.8 mid-level lenses. With the value of the Canadian dollar increasing against the Japanese Yen in the past few months, both the D300 and E-3 have become more affordable—under \$1,500.

Sandisk Weather Disk This is a product that you can't buy yet, but its potential to change the PC experience is immense. Technicians have long grunted for a flash-drive-based PC, so that the boot times, file access, etc. could be shortened by flash memory's much faster I/O times. Sandisk's Weather Disk is an intermediate step toward that—essentially it is a flash drive that works in concert with existing mechanical hard drives. The flash drive is big enough to hold the operating system and frequently used files, and intelligence between the flash and mechanical drives would pull files that don't need fast I/O on the slower (and bigger) mechanical drive.

If next time ...
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